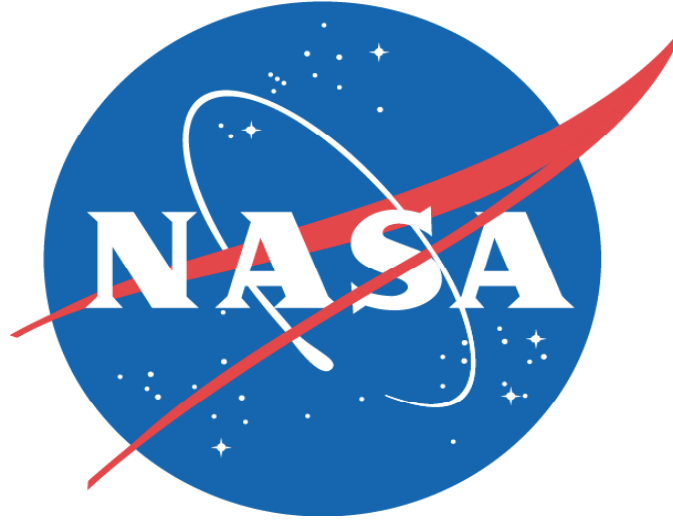


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**Subject:** Management of Information Technology Architecture and Standards



**Chief Information Officer**

**Office Work Instruction**

**Management of Information Technology  
Architecture and Standards**

Approved by: Original Signed by Lee B. Holcomb on December 7, 1999  
Lee B. Holcomb  
Chief Information Officer

Responsible Office: Code AO

**Subject:** Management of Information Technology Architecture and Standards

## DOCUMENT HISTORY LOG

<b><u>Status</u></b> <b><u>(Baseline/</u></b> <b><u>Revision/</u></b> <b><u>Canceled)</u></b>	<b><u>Document</u></b> <b><u>Revision</u></b>	<b><u>Effective</u></b> <b><u>Date</u></b>	<b><u>Description</u></b>
Baseline		December 7, 1999	

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## **1.0 Purpose**

The purpose of this OWI is to document the procedures for managing and dispositioning proposed changes to NASA's Information Technology (IT) architecture and standards.

## **2.0 Scope and Applicability**

### **2.1 Scope**

This work instruction describes procedures used by Code AO in managing and dispositioning proposed changes to NASA's IT architecture and standards. The process involves the IT Principal Centers and the Principal Center Integration Team (PCIT), and includes participation by both outsourcers (e.g., Outsourcing Desktop Initiative for NASA (ODIN) and Consolidated Space Operations Contract (CSOC)) and major Agency programs and projects (e.g., Integrated Financial Management Program (IFMP) and Intelligent Synthesis Environment (ISE)). The process begins with the proposal (by NASA or by its contractors) of a new or modified IT standard or architecture element, and terminates with either rejection of the proposal; or, its incorporation into a NASA IT Standard and monitoring of its implementation at the Centers.

### **2.2 Applicability**

This work instruction for Management of NASA Information Technology Standards and Architecture applies to NASA Chief Information Officer (Code AO) offices. The Chief Information Officer is responsible for maintaining this document. The controlled version of this OWI is available on the NASA Intranet via the HQ ISO 9000 Document Library at <http://hqiso9000.hq.nasa.gov>. Any printed version of this OWI is uncontrolled (reference: HCP 1400.1, *Document and Data Control*).

## **3.0 Definitions**

3.1 CIO: Chief Information Officer

3.2 CIO Board: The CIO Board is chaired by the NASA CIO and is composed of CIO Representatives from the Strategic Enterprises and Centers along with representatives from the Office of the CFO, and, as an observer, the Jet Propulsion Laboratory. Refer to NPG 2800 for a complete description of the CIO Board.

3.3 CIO Council: The CIO Council is chaired by the NASA CIO and consists of the NASA Deputy CIO, Chief Financial Officer (CFO) or Deputy, Enterprise Associate Administrators or Deputies, Associate Administrator for Headquarters Operations, Associate Administrator for Management Systems and Facilities, Chief Engineer or Deputy, Chief Technologist or Deputy, and Manager, Space Operations Management Office. Refer to NPG 2800 for a complete description of the CIO Council.

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3.4 Clinger-Cohen Act: The Federal statute also known as the Information Technology Management Reform Act of 1996.

3.5 PCIT: Principal Center Integration Team. Required by NPG 2800. Consists of the Manager of the Principal Center for Workgroup Hardware/Software (Glenn Research Center); Principal Center for Communications Architecture (Marshall Space Flight Center); Principal Center for Information Technology Security (Ames Research Center); a representative from the Outsourcing Desktop Initiative for NASA (ODIN) Program; a representative from the Integrated Financial Management Program (IFMP); a representative from the Space Operations Management Office (SOMO); and, a representative from the Intelligent Synthesis Environment (ISE) Program. Chaired by a staff member of the NASA Chief Information Officer's Office.

#### 4.0 References

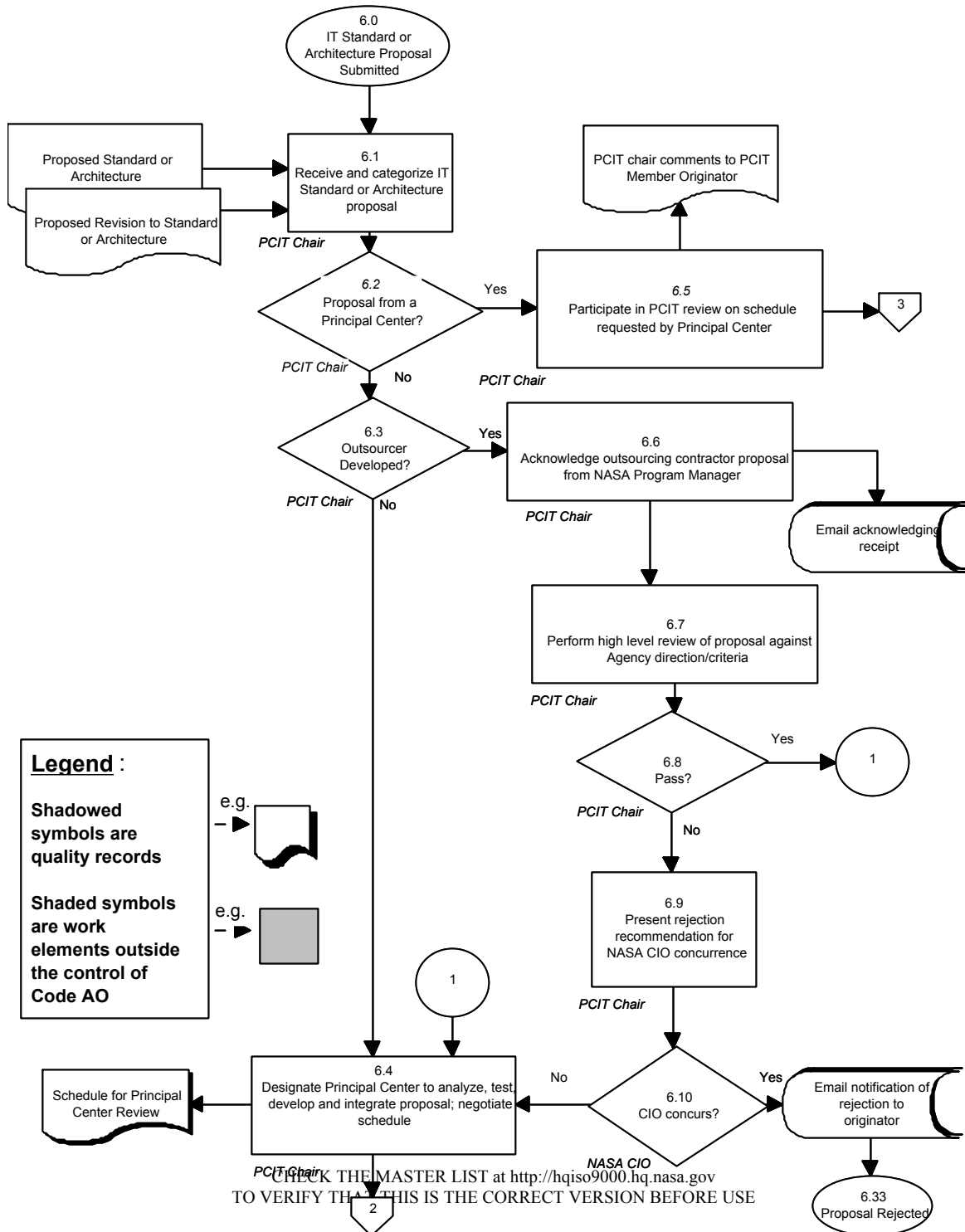
4.1	NPD 1000.1	NASA Strategic Plan
4.2	NPG 1000.2	NASA Strategic Management Handbook
4.3	NPG 1000.2	DRAFT NASA Strategic Management System
4.4	HCP 1400.1	Document and Data Control
4.5	NPD 2800.1	Managing Information Technology
4.6	NPG 2800.1	Managing Information Technology
4.7	PCIT-103	Roles, Responsibilities, and Processes of the Principal Centers, Principal Center Integration Team, Expert Centers, and Associated Working Groups (November 10, 1998)
4.8	PCIT-110	Management of NASA Information Technology Architecture and Standards (March 3, 1999)
4.9		Marshall Space Flight Center Technical Standard Format @ <a href="http://standards.nasa.gov">http://standards.nasa.gov</a>

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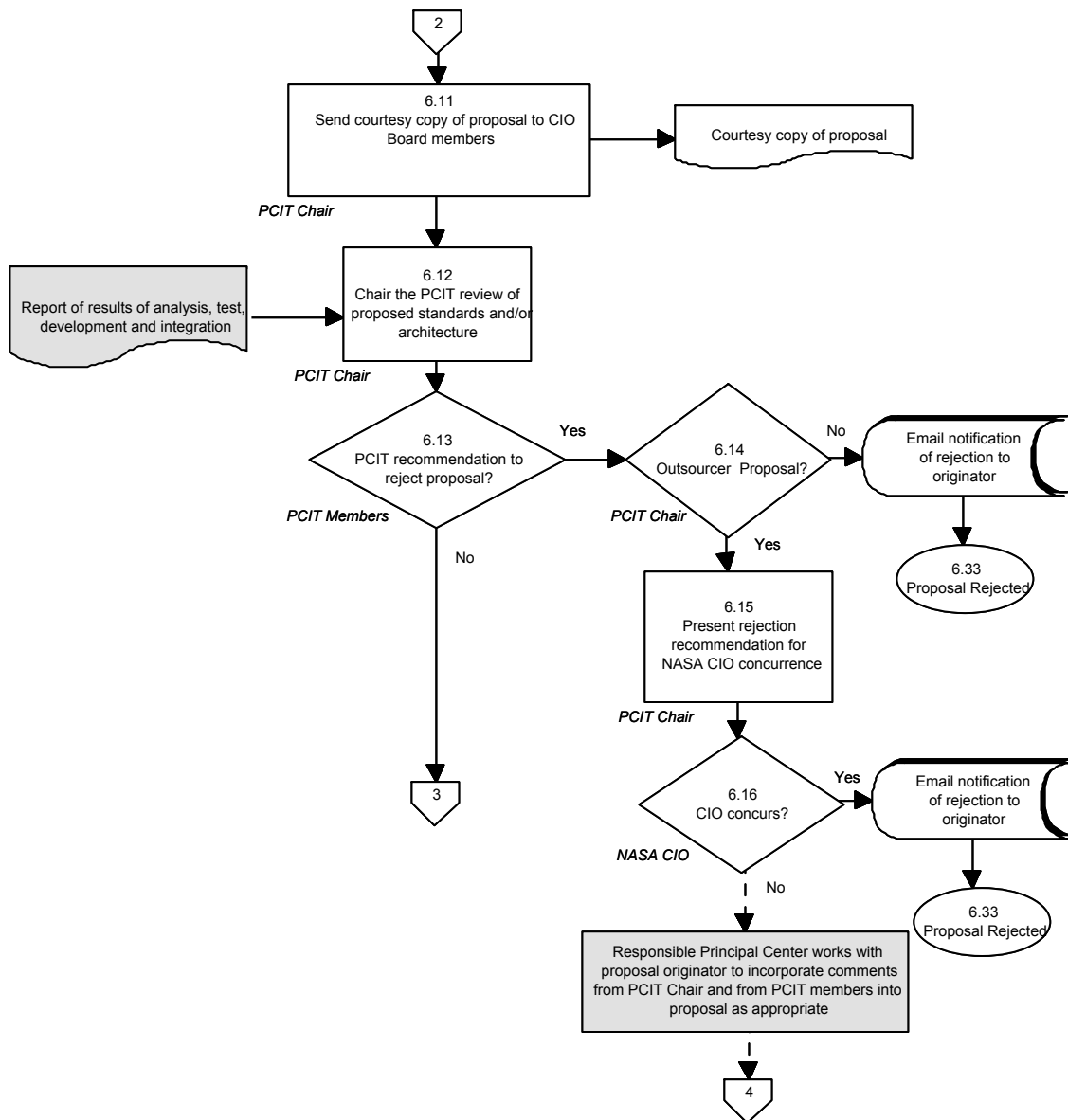
## 5.0 Flowchart

The following flowchart depicts the procedure described in Section 6. Quality records are listed in Section 7.



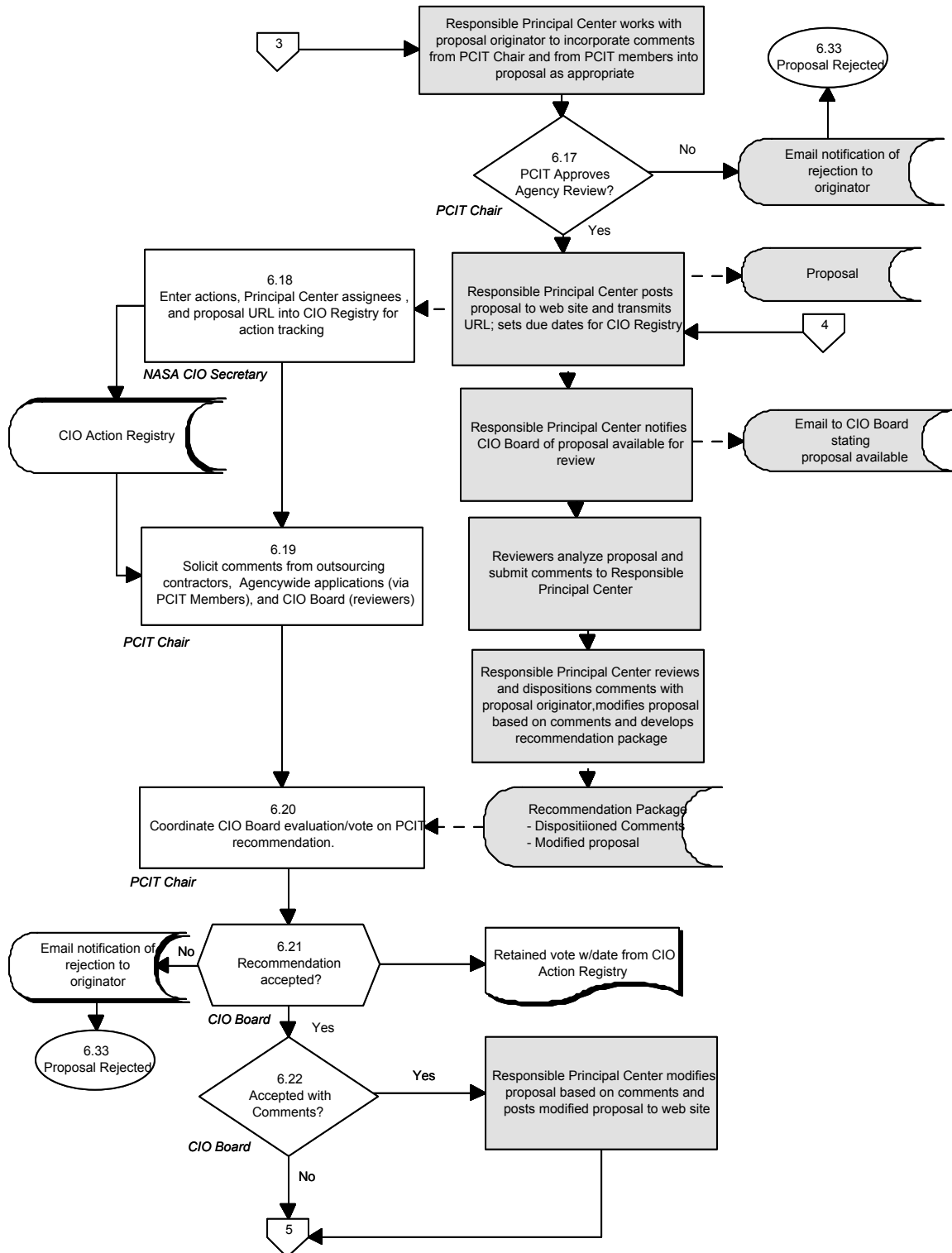
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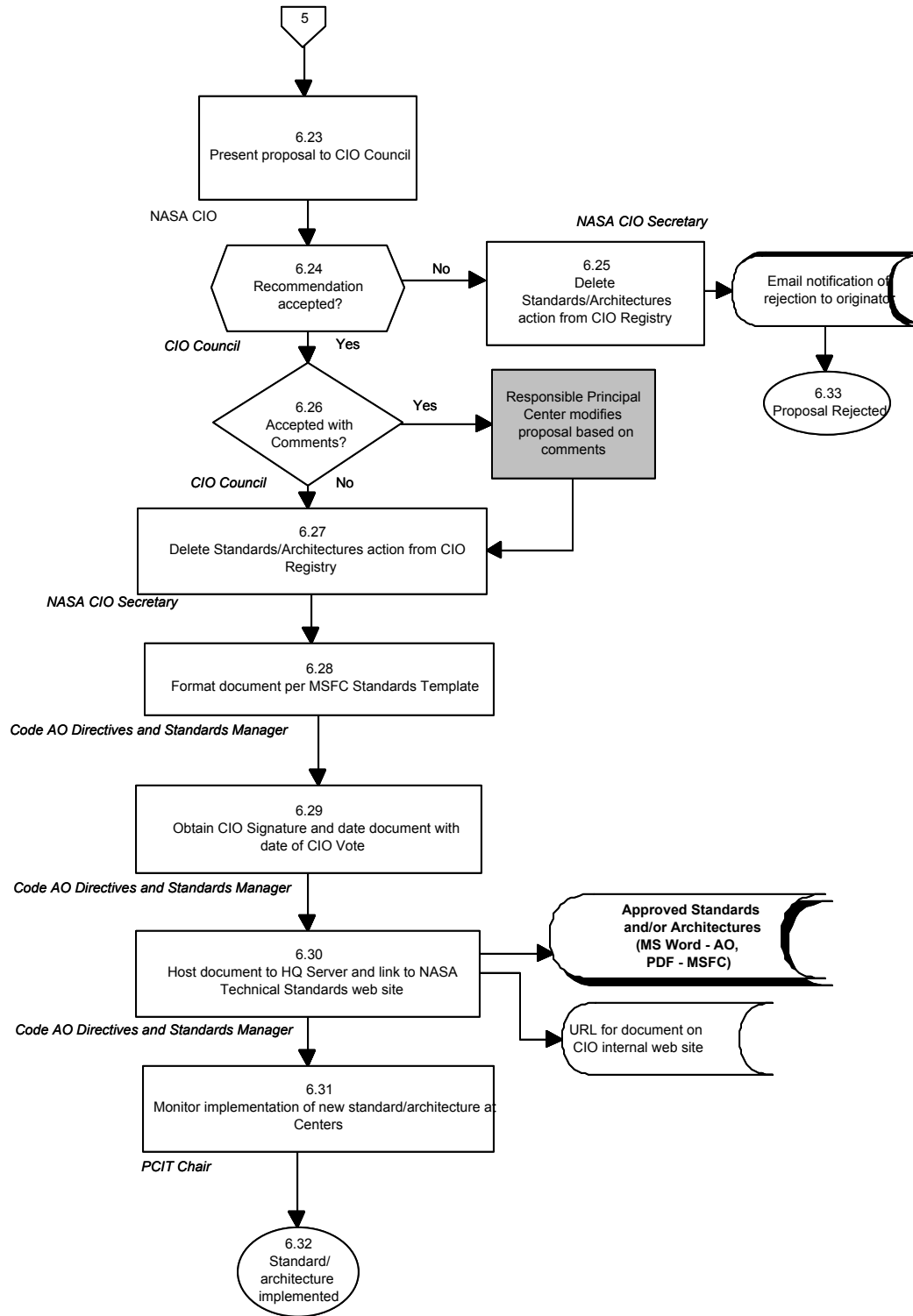
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## 6.0 Procedure

The Management of NASA Information Technology Standards and Architecture Process is performed by Code AO with participation by other elements of the Agency. Actions taken on behalf of the Agency by the CIO and his designees are in accord with the Clinger-Cohen Act and other relevant statutes.

<u>Step</u>	<u>Actionee</u>	<u>Action</u>
6.1	PCIT Chair	<i>Receive and categorize IT Standard or Architecture proposal.</i> Accept receipt of a proposed change to NASA IT Technical Standard or Architecture. NASA civil service employees (including Principal Centers and other Centers), NASA support services contractors, or outsourcer contractors may originate proposals for changes. Proposals originated by civil service employees are submitted for review either directly by the originator or through Center management, depending upon the policy in effect at a given Center. Proposals originated by support services contractors are normally submitted for review through the appropriate NASA Center civil service management. Proposals from outsourcer contractors must be submitted to the PCIT Chair via the appropriate NASA outsourcer Program Manager.
6.2	PCIT Chair	<i>Proposal from a Principal Center?</i> Was the source of the proposal one of the NASA Principal Centers? The Principal Centers originate new standards in their areas of expertise and, in some cases, produce periodic updates to existing standards. If yes, proceed to Step 6.5. If no, proceed to Step 6.3.
6.3	PCIT Chair	<i>Outsourcer Developed?</i> Was the source of the proposal an outsourcer contractor? If yes, proceed to Step 6.6. If no, proceed to Step 6.4
6.4	PCIT Chair	<i>Designate Principal Center to analyze, test, develop and integrate proposal.</i> As a result of analyzing the nature of the proposal, decide which Principal Center will be responsible for the analysis, test, further development, and integration of the proposal. The designated Principal Center is also responsible for ensuring that proposals are compliant with or are made compliant with relevant Federal statutes and regulations, e.g., compliance with relevant Federal Information Processing Standards. The decision of which Principal Center will be responsible is based on the technology area most affected by the proposal. For example, proposals affecting desktop hardware or software would be assigned to the Principal Center for Workgroup Hardware/Software. This Responsible Principal Center retains responsibility for the proposal in subsequent steps described in this process. On rare occasions when the proposal affects multiple technology areas, more than one Principal Center may be designated as responsible for the proposal. The PCIT Chair also negotiates with the designated Principal Center to determine the schedule for review of the proposal.
6.5	PCIT Chair	<i>Participate in PCIT review on schedule requested by Principal Center.</i> The PCIT Chair reviews the proposal and generates comments. The PCIT Chair sends comments on the proposal via email to the responsible Principal Center. In

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<u>Step</u>	<u>Actionee</u>	<u>Action</u>
		an out-of-scope process, the responsible Principal Center analyzes the PCIT Chair's comments along with those of other PCIT members and makes appropriate changes to the proposal. Formal disposition of comments is not performed at this stage. The process then proceeds to Step 6.17.
6.6	PCIT Chair	<i>Acknowledge outsourcing contractor proposal from NASA Program Manager.</i> The PCIT Chair sends an email to the NASA Program Manager responsible for the outsourcing contract acknowledging receipt of the proposal.
6.7	PCIT Chair	<i>Perform high level review of proposal against Agency direction/criteria.</i> The PCIT Chair analyzes the proposal to ensure that it meets very basic criteria for acceptability before sending it to other Agency reviewers. Basic criteria include: conformance with other elements of the Agency architecture or contains a rationale and approach for modifying other elements of the architecture; estimation of costs and schedule required for implementation; prior coordination with other Agency outsourcers to the degree required by the specific outsourcing contract; and, a clear description of the proposal to a level of detail that evaluators may determine its merits and drawbacks. This review is intended to be high level only and serve as a basic checkpoint prior to detailed proposal review.
6.8	PCIT Chair	<i>Pass?</i> If the proposal passes the PCIT Chair review described in Step 6.7, proceed to Step 6.4. If the proposal does not pass the PCIT Chair review described in Step 6.7, proceed to Step 6.9.
6.9	PCIT Chair	<i>Present rejection recommendation for NASA CIO concurrence.</i> Present to the NASA CIO the rationale for the rejection recommendation.
6.10	NASA CIO	<i>CIO concurs?</i> Does the NASA CIO concur in the PCIT Chair's recommendation that the proposal be rejected? If yes, the proposal is not accepted and the process terminates (Step 6.33). If no, proceed to Step 6.4.
6.11	PCIT Chair	<i>Send courtesy copy of proposal to CIO Board members.</i> Send a courtesy copy of the proposal to CIO Board members so that they have an early opportunity to know that a proposal is under consideration .
6.12	PCIT Chair	<i>Chair the PCIT review of proposed standards and/or architecture.</i> Once the result of the proposal review work is completed by the Responsible Principal Center, review the results of the analysis by chairing a meeting (teleconference, videoconference, or face-to-face meeting) of the PCIT members. The PCIT members decide whether to reject or accept (provisionally) the proposal. Acceptance would be provisional since approval by the CIO Board and CIO Council, as documented below, is still required for full approval.
6.13	PCIT Members	<i>PCIT recommendation to reject proposal?</i> Does the PCIT recommend rejection of the proposal? If yes, proceed to Step 6.14. If no, as described in the out-of-scope activity on Page 7, connector "3", the responsible Principal Center analyzes the PCIT Chair's comments along those of other PCIT members and makes appropriate changes to the proposal. Formal disposition of comments is not performed at this stage. The process then proceeds to Step 6.17.
6.14	PCIT Chair	<i>Outsourcer Proposal?</i> Was the proposal recommended for rejection by the PCIT originated by an outsourcer contractor (see Step 6.3)? If yes, proceed to Step

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<u>Step</u>	<u>Actionee</u>	<u>Action</u>
		6.15. If no, the proposal is not accepted and the process terminates (Step 6.33).
6.15	PCIT Chair	<i>Present rejection recommendation for NASA CIO concurrence.</i> Present to the NASA CIO the rationale for the rejection recommendation.
6.16	NASA CIO	<i>CIO concurs?</i> Does the NASA CIO concur in the PCIT's recommendation that the proposal be rejected? If yes, the proposal is not accepted and the process terminates (Step 6.33). If no, as described in the out-of-scope activity on Page 6, the responsible Principal Center analyzes the PCIT Chair's comments along those of other PCIT members and makes appropriate changes to the proposal. Formal disposition of comments is not performed at this stage. The Responsible Principal Center, as described in the out-of-scope activity on Page 7, connector "4", then posts the proposal to its web site, and sends the Universal Resource Locator (URL) where the proposal may be found, along with due dates for the Agency review, to the NASA CIO Secretary. The process then proceeds to Step 6.18.
6.17	PCIT Chair	<i>PCIT Approves Agency Review?</i> If the PCIT approves the proposal for further Agency review, the Responsible Principal Center posts the proposal to its web site, and sends the Universal Resource Locator (URL) where the proposal may be found, along with due dates for the Agency review, to the NASA CIO Secretary.
6.18	NASA CIO Secretary	<i>Enter actions, Principal Center assignees, and proposal URL into CIO Registry for action tracking.</i> Enter into the NASA CIO Action Registry the actions to review the proposal, comment on the proposal, and disposition comments to the proposal (with due dates for each action), along with the URL (supplied by the Responsible Principal Center) for the web site where the proposal is posted. The name of the person at the Responsible Principal Center charged with collection and disposition of comments is also posted. In an out-of-scope process, the Responsible Principal Center notifies the CIO Board members via email that a proposal is available for review.
6.19	PCIT Chair	<i>Solicit comments from outsourcing contractors, Agencywide applications (via PCIT Members), and CIO Board (reviewers).</i> Send reminders via email, phone calls, teleconferences, and whatever other means are necessary to the proposal reviewers to review the proposal and send comments to the Principal Center assigned responsibility for the proposal. In an out-of-scope process, the reviewers analyze the proposal and send via email their comments to the person at the Responsible Principal Center named in the CIO Action Registry. This person works with the proposal originator to disposition comments on the proposal. Comments are dispositioned as Accept, Reject, Accept/Reject, or No Action. Accept means that the comment is judged to be appropriate and the proposal is modified to reflect the comment. Reject means the comment is judged to be not appropriate and a rationale for rejection is included in the disposition of comments. Accept/Reject is used when a comment has multiple parts and receives only partial acceptance. The rationale for the rejected portion is included in the disposition of comments. No Action is used when a comment is submitted that does not explicitly specify a modification to a proposal.

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<u>Step</u>	<u>Actionee</u>	<u>Action</u>
		Although these submissions are commentary in nature and would not result in modifications to the proposal, regardless of acceptance or rejection, they are documented in the disposition of comments. Dispositioning comments will often require dialogue by the Responsible Principal Center and proposal originator with the person supplying the comment to understand the comment fully, and to attempt to arrive at a disposition of the comment that the comment originator finds satisfactory. In some cases, it may not be practical to reach full agreement with the comment originator, and the Responsible Principal Center makes the final determination. Based on comments that were dispositioned as Accept or Accept/Reject, the Responsible Principal Center modifies the proposal and develops a recommendation package consisting of a recommendation for acceptance or rejection, dispositioned comments, and the proposal modified to reflect dispositioned comments. This package is used to support the CIO Board decision described in Step 6.21.
6.20	PCIT Chair	<i>Coordinate CIO Board evaluation/vote on PCIT recommendation.</i> Invite the PCIT, outsourcers' NASA Program Managers, the outsourcers' Contractor Program Managers, and the Agencywide applications Program Managers (via the NASA Program Managers) to attend and participate, in an advisory capacity, in the teleconference or face-to-face meeting per the NASA CIO Action Registry schedule. Introduce the proposal vote and summarize any outstanding issues. The vote is on a consensus basis. If consensus cannot be reached, the NASA CIO decides whether the proposal is accepted, rejected, or accepted with modifications. A quality record of the vote is recorded.
6.21	CIO Board	<i>Recommendation accepted?</i> Was the recommendation to accept the package accepted? If accepted with or without comments proceed to Step 6.22. If not accepted, terminate this process (Step 6.33).
6.22	CIO Board	<i>Accepted with comments?</i> If accepted with modifications, in an out of scope process the Responsible Principal Center modifies the proposal based on the comments and posts the new version to the web site, and then process continues with Step 6.23. If accepted without modifications, proceed directly to Step 6.23.
6.23	NASA CIO	<i>Present proposal to CIO Council.</i> Present the proposal in its final approved form to the CIO Council
6.24	CIO Council	<i>Recommendation accepted?</i> Does the CIO Council approve the proposal as presented? If accepted with or without comments proceed to Step 6.26. If not accepted, proceed to Step 6.25.
6.25	NASA CIO Secretary	<i>Delete Standards/Architectures action from CIO Registry.</i> The action associated with this proposal is deleted from the NASA CIO Action Registry and this process terminates (Step 6.33).
6.26	CIO Council	<i>Accepted with comments?</i> If accepted with modifications, in an out of scope process the Responsible Principal Center modifies the proposal based on the comments, and the process continues with Step 6.27. If accepted without modifications, proceed directly to Step 6.27.
6.27	NASA CIO	<i>Delete Standards/Architectures action from CIO Registry.</i> The action associated

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<u>Step</u>	<u>Actionee</u>	<u>Action</u>
	Secretary	with this proposal is deleted from the NASA CIO Action Registry.
6.28	Code AO Directives and Standards Manager	<i>Format document per MSFC Standards Template.</i> Format the now approved proposal in the standard format specified by the Marshall Space Flight Center (MSFC) template.
6.29	Code AO Directives and Standards Manager	<i>Obtain CIO Signature and date document with date of CIO Vote.</i> Obtain the NASA CIO's signature and date the document with the date of the CIO Board vote. Create two electronic copies of the document: one in MS Word and one in Adobe Acrobat Portable Data Format.
6.30	Code AO Directives and Standards Manager	<i>Host document to HQ Server and link to NASA Technical Standards web site.</i> Place both electronic copies of the document created in Step 6.29 on the HQ Server and provide the URL of Adobe Acrobat Portable Data Format version to the NASA Technical Standards site at MSFC. Link the MS Word version of the document to the NASA CIO internal web site.
6.31	PCIT Chair	<i>Monitor implementation of new standard/architecture at Centers.</i> Work with the Centers to ensure that the new NASA IT Technical Standard is implemented on the agreed-to schedule and that issues with its implementation are resolved and/or raised to the NASA CIO for decision/resolution.
6.32		<i>Standard/architecture implemented.</i> End of process.
6.33		<i>Proposal rejected.</i> End of process. Rejected proposals always result in email notification of rejection to the originator of the proposal (quality record).

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## 7.0 Quality Records

<u>Record ID</u>	<u>Owner</u>	<u>Location</u>	<u>Record Media</u>	<u>NPG 1441.1 Schedule and Item Number</u>	<u>Retention/Disposition</u>
Email acknowledging receipt	PCIT Chair	Headquarters	Electronic (U:\Code AO\Arch & Std\Quality Records on Proposals\ Email acknowledgin g receipt)	Schedule 1, item 78,C	Per NARA  - Before 12/98: Destroy when no longer needed;  - Since 12/98: Destroy or delete when 2 years old, or 2 years after the date of the latest entry, whichever is applicable.
Email notification of rejection to originator	PCIT Chair	Headquarters	Electronic (U:\ Code AO\Arch & Std\Quality Records on Proposals\ Email notification of rejection to originator)	Schedule 1, item 78,C	Per NARA  - Before 12/98: Destroy when no longer needed;  - Since 12/98: Destroy or delete when 2 years old, or 2 years after the date of the latest entry, whichever is applicable.
Schedule for Principal Center Review	PCIT Chair	Code AO Office	Hard Copy	Schedule 1, item 78,C	Per NARA  - Before 12/98: Destroy when no longer needed;  - Since 12/98: Destroy or delete when 2 years old, or 2 years after the date of the latest entry, whichever is applicable.

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<u>Record ID</u>	<u>Owner</u>	<u>Location</u>	<u>Record Media</u>	<u>NPG 1441.1 Schedule and Item Number</u>	<u>Retention/Disposition</u>
CIO Action Registry	Code AO	Headquarters server	Electronic ( <a href="http://www.hq.nasa.gov/office/codea/codea/registry.html">http://www.hq.nasa.gov/office/codea/codea/registry.html</a> )	Schedule 1, item 78,C	Per NARA - Before 12/98: Destroy when no longer needed; - Since 12/98: Destroy or delete when 2 years old, or 2 years after the date of the latest entry, whichever is applicable.
Retained vote w/date from CIO Action Registry	Code AO	Code AO Office	Hard Copy	Schedule 1, item 78,C	Per NARA - Before 12/98: Destroy when no longer needed; - Since 12/98: Destroy or delete when 2 years old, or 2 years after the date of the latest entry, whichever is applicable.
Approved Standards and/or Architectures	NASA CIO	<a href="http://standards.nasa.gov">http://standards.nasa.gov</a>	Electronic	Schedule 1, item 72, A	Permanent; retire to FRC 1 year after becoming obsolete or superseded. Transfer to NARA in 5 year blocks when 20 years old.